Learning to Fly: The Wright Brother's Adventure			
2006 Science			
Learning Standards			
District of Columbia Science			
Grade 6			
Activity/Lesson	**State**	**Standards**	
The Society	DC	SCI.6.1.1	Give examples of different ways scientists investigate natural phenomena, and identify processes all scientists use, such as collection of relevant evidence, the use of reasoning, the development and testing of hypotheses, and the use and construction of theory to make sense of the evidence.
Meet the Wrights	DC	SCI.6.1.1	Give examples of different ways scientists investigate natural phenomena, and identify processes all scientists use, such as collection of relevant evidence, the use of reasoning, the development and testing of hypotheses, and the use and construction of theory to make sense of the evidence.
Meet the Wrights	DC	SCI.6.1.5	Write a report of an investigation that includes the problem to be solved, the methods employed, the tests conducted, the data collected or evidence examined, and the conclusions drawn.
1900: Kitty Hawks	DC	SCI.6.1.5	Write a report of an investigation that includes the problem to be solved, the methods employed, the tests conducted, the data collected or evidence examined, and the conclusions drawn.
1901: The First Improvement	DC	SCI.6.1.3	Identify dependent and independent variables in those investigations that have controls. And, if no controls are used, explain why.
1903: Powered Flight	DC	SCI.6.1.8	Record and organize information in simple tables and graphs, and identify relationships they reveal. Use tables and graphs as examples of evidence for explanations when writing essays or writing about lab work, fieldwork, etc. Read simple tables and graphs produced by others, and describe in words what they show.
Learning to Fly: The Wright Brother's Adventure			
2006 Science			
Learning Standards			
District of Columbia Science			
Grade 7			
Activity/Lesson	**State**	**Standards**	

New Data	DC	SCI.7.1.1	Explain that when similar investigations give different results, further studies may help to show whether the differences are significant.
New Data	DC	SCI.7.1.2	Explain why it is important in science to keep honest, clear, and accurate records.
New Data	DC	SCI.7.7.8	Recognize that the environment may contain dangerous levels of substances that are harmful to human beings. Therefore, the good health of individuals requires monitoring the soil, air, and water, as well as taking steps to keep them safe.
1904: Improvement in Dayton	DC	SCI.7.1.5	Communicate the steps and results from an investigation in written reports and verbal presentations.
Learning to Fly: The Wright Brother's Adventure			
2006 Science			
Learning Standards			
District of Columbia Science			
Grade 8			
Activity/Lesson	**State**	**Standards**	
The Society	DC	SCI.8.1.4	Explain why accuracy and openness in record keeping and replication are essential for maintaining an investigator's credibility with other scientists and society.
Wright Brothers: 1900 Glider	DC	SCI.8.1.8	Read analog and digital meters on instruments used to make direct measurements of length, volume, weight, elapsed time, rates, or temperatures, and choose appropriate units. Explain how to interpolate on analog scales.
Wright Brothers: 1901 Glider	DC	SCI.8.1.8	Read analog and digital meters on instruments used to make direct measurements of length, volume, weight, elapsed time, rates, or temperatures, and choose appropriate units. Explain how to interpolate on analog scales.
Wright Brothers: 1902 Glider	DC	SCI.8.1.8	Read analog and digital meters on instruments used to make direct measurements of length, volume, weight, elapsed time, rates, or temperatures, and choose appropriate units. Explain how to interpolate on analog scales.
Wright Brothers: 1903 Flyer	DC	SCI.8.1.8	Read analog and digital meters on instruments used to make direct measurements of length, volume, weight, elapsed time, rates, or temperatures, and choose appropriate units. Explain how to interpolate on analog scales.

1901: The First Improvement	DC	SCI.8.1.9	Explain why arguments may be invalid if based on very small samples of data, biased samples, or experiments in which there was no control sample.
1901: The First Improvement	DC	SCI.8.7.1	Recognize that a force has both magnitude and direction.
1901: The First Improvement	DC	SCI.8.7.2	Observe and explain that when the forces on an object are balanced (equal and opposite forces that add up to zero), the motion of the object does not change.
1901: The First Improvement	DC	SCI.8.7.3	Explain why an unbalanced force acting on an object changes the object's speed or direction of motion or both.
1901: The First Improvement	DC	SCI.8.7.5	Know that the greater the mass of an object, the more force is needed to change its motion.
1901: The First Improvement	DC	SCI.8.7.6	Explain that if the net force acting on an object always acts toward the same center as the object moves, the object's path is a curve about the force center. (Motion in a circular orbit is the simplest example of this concept.)
New Data	DC	SCI.8.1.3	Describe how if more than one variable changes at the same time in an experiment, the outcome of the experiment may not be attributable to a change in any single variable.
New Data	DC	SCI.8.1.8	Read analog and digital meters on instruments used to make direct measurements of length, volume, weight, elapsed time, rates, or temperatures, and choose appropriate units. Explain how to interpolate on analog scales.
New Data	DC	SCI.8.1.9	Explain why arguments may be invalid if based on very small samples of data, biased samples, or experiments in which there was no control sample.
1902: Success at Last	DC	SCI.8.1.8	Read analog and digital meters on instruments used to make direct measurements of length, volume, weight, elapsed time, rates, or temperatures, and choose appropriate units. Explain how to interpolate on analog scales.
1903: Powered Flight	DC	SCI.8.1.7	Use tables, charts, and graphs in making arguments and claims in presentations about lab work.
1903: Powered Flight	DC	SCI.8.1.8	Read analog and digital meters on instruments used to make direct measurements of length, volume, weight, elapsed time, rates, or temperatures, and choose appropriate units. Explain how to interpolate on analog scales.

1903: Powered Flight	DC	SCI.8.7.3	Explain why an unbalanced force acting on an object changes the object's speed or direction of motion or both.
1904: Improvement in Dayton	DC	SCI.8.7.1	Recognize that a force has both magnitude and direction.
1904: Improvement in Dayton	DC	SCI.8.7.5	Know that the greater the mass of an object, the more force is needed to change its motion.
Learning to Fly: The Wright Brother's Adventure			
2006 Science			
Learning Standards			
District of Columbia Science			
Grade 8 (New Grade 8)			
Activity/Lesson	**State**	**Standards**	
The Society	DC	SCI.8.2.4	Read analog and digital meters on instruments used to make direct measurements of length, volume, weight, elapsed time, rates, or temperatures, and choose appropriate units. Explain how to interpolate on analog scales.
Wright Brothers: 1900 Glider	DC	SCI.8.2.4	Read analog and digital meters on instruments used to make direct measurements of length, volume, weight, elapsed time, rates, or temperatures, and choose appropriate units. Explain how to interpolate on analog scales.
Wright Brothers: 1901 Glider	DC	SCI.8.2.4	Read analog and digital meters on instruments used to make direct measurements of length, volume, weight, elapsed time, rates, or temperatures, and choose appropriate units. Explain how to interpolate on analog scales.
Wright Brothers: 1902 Glider	DC	SCI.8.2.4	Read analog and digital meters on instruments used to make direct measurements of length, volume, weight, elapsed time, rates, or temperatures, and choose appropriate units. Explain how to interpolate on analog scales.
Wright Brothers: 1903 Flyer	DC	SCI.8.2.4	Read analog and digital meters on instruments used to make direct measurements of length, volume, weight, elapsed time, rates, or temperatures, and choose appropriate units. Explain how to interpolate on analog scales.

1901: The First Improvement	DC	SCI.8.1.4	Identify and criticize the reasoning in arguments in which fact and opinion are intermingled or the conclusions do not follow logically from the evidence given, an analogy is not apt, no mention is made of whether the control group is very much like the experimental group, or all members of a group are implied to have nearly identical characteristics that differ from those of other groups.
1901: The First Improvement	DC	SCI.8.2.1	Describe how if more than one variable changes at the same time in an experiment, the outcome of the experiment may not be attributable to a change in any single variable.
1901: The First Improvement	DC	SCI.8.2.4	Read analog and digital meters on instruments used to make direct measurements of length, volume, weight, elapsed time, rates, or temperatures, and choose appropriate units. Explain how to interpolate on analog scales.
1901: The First Improvement	DC	SCI.8.2.5	Explain why arguments may be invalid if based on very small samples of data, biased samples, or experiments in which there was no control sample.
1901: The First Improvement	DC	SCI.8.11.1	Recognize that a force has both magnitude and direction.
1901: The First Improvement	DC	SCI.8.11.2	Observe and explain that when the forces on a object are balanced (equal and opposite forces that add up to zero), the motion of the object does not change.
1901: The First Improvement	DC	SCI.8.11.3	Explain why an unbalanced force acting on an object changes the object's speed or direction of motion or both.
1901: The First Improvement	DC	SCI.8.11.4	Know that the greater the mass of an object, the more force is needed to change its motion.
1901: The First Improvement	DC	SCI.8.11.6	Explain that if the net force acting on an object always acts toward the same center as the object moves, the object's path is a curve about the force center. (Motion in a circular orbit is the simplest example of this concept.)

New Data	DC	SCI.8.1.4	Identify and criticize the reasoning in arguments in which fact and opinion are intermingled or the conclusions do not follow logically from the evidence given, an analogy is not apt, no mention is made of whether the control group is very much like the experimental group, or all members of a group are implied to have nearly identical characteristics that differ from those of other groups.
New Data	DC	SCI.8.2.1	Describe how if more than one variable changes at the same time in an experiment, the outcome of the experiment may not be attributable to a change in any single variable.
New Data	DC	SCI.8.2.4	Read analog and digital meters on instruments used to make direct measurements of length, volume, weight, elapsed time, rates, or temperatures, and choose appropriate units. Explain how to interpolate on analog scales.
New Data	DC	SCI.8.2.5	Explain why arguments may be invalid if based on very small samples of data, biased samples, or experiments in which there was no control sample.
1902: Success at Last	DC	SCI.8.2.4	Read analog and digital meters on instruments used to make direct measurements of length, volume, weight, elapsed time, rates, or temperatures, and choose appropriate units. Explain how to interpolate on analog scales.
1903: Powered Flight	DC	SCI.8.2.3	Use tables, charts, and graphs in making arguments and claims in presentations about lab work.
1903: Powered Flight	DC	SCI.8.2.4	Read analog and digital meters on instruments used to make direct measurements of length, volume, weight, elapsed time, rates, or temperatures, and choose appropriate units. Explain how to interpolate on analog scales.
1903: Powered Flight	DC	SCI.8.11.3	Explain why an unbalanced force acting on an object changes the object's speed or direction of motion or both.
1903: Powered Flight	DC	SCI.8.11.7	Plot and interpret distance versus time graphs for constant speed.
1904: Improvement in Dayton	DC	SCI.8.11.1	Recognize that a force has both magnitude and direction.
1904: Improvement in Dayton	DC	SCI.8.11.2	Observe and explain that when the forces on a object are balanced (equal and opposite forces that add up to zero), the motion of the object does not change.

1904: Improvement in Dayton	DC	SCI.8.11.4	Know that the greater the mass of an object, the more force is needed to change its motion.
1904: Improvement in Dayton	DC	SCI.8.11.6	Explain that if the net force acting on an object always acts toward the same center as the object moves, the object's path is a curve about the force center. (Motion in a circular orbit is the simplest example of this concept.)
Learning to Fly: The Wright Brother's Adventure			
2006 Science			
Learning Standards			
District of Columbia Science			
Grades 9-12 (Physics)			
Activity/Lesson	**State**	**Standards**	
1900: Kitty Hawks	DC	SCI.P.1.2	Know that scientists cannot always control all conditions when obtaining evidence, and when they are unable to do so for ethical or practical reasons, they try to observe as wide a range of natural occurrences as possible so as to be able to discern patterns.
1901: The First Improvement	DC	SCI.P.1.2	Know that scientists cannot always control all conditions when obtaining evidence, and when they are unable to do so for ethical or practical reasons, they try to observe as wide a range of natural occurrences as possible so as to be able to discern patterns.
1901: The First Improvement	DC	SCI.P.1.4	Recognize the use and limitations of models and theories as scientific representations of reality.
1901: The First Improvement	DC	SCI.P.1.14	Recognize and deal with the implications of statistical variability in experiments, and explain the need for controls in experiments.
1901: The First Improvement	DC	SCI.P.2.1	Explain that when the net force on an object is zero, no acceleration occurs; thus, a moving object continues to move at a constant speed in the same direction, or, if at rest, it remains at rest (Newton’s first law).
1901: The First Improvement	DC	SCI.P.2.2	Explain that only when a net force is applied to an object will its motion change; that is, it will accelerate according to Newton’s second law, F = ma.

1901: The First Improvement	DC	SCI.P.2.3	Predict and explain how when one object exerts a force on a second object, the second object always exerts a force of equal magnitude but of opposite direction and force back on the first: F1 on 2 = –F2 on 1 (Newton's third law).
1901: The First Improvement	DC	SCI.P.2.7	Explain how a force acting on an object perpendicular to the direction of its motion causes it to change direction but not speed.
New Data	DC	SCI.P.1.1	Know the elements of scientific methodology (identification of a problem, hypothesis formulation and prediction, performance of experimental tests, analysis of data, falsification, developing conclusions, reporting results) and be able to use a sequence of those elements to solve a problem or test a hypothesis. Also, understand the limitations of any single scientific method (sequence of elements) in solving problems.
New Data	DC	SCI.P.1.6	Plan and conduct scientific investigations to explore new phenomena, to check on previous results, to verify or falsify the prediction of a theory, and to use a crucial experiment to discriminate between competing theories.
New Data	DC	SCI.P.1.8	Identify and communicate the sources of error inherent in an experiment.
New Data	DC	SCI.P.1.9	Identify discrepant results and identify possible sources of error or uncontrolled conditions.
New Data	DC	SCI.P.1.14	Recognize and deal with the implications of statistical variability in experiments, and explain the need for controls in experiments.
1903: Powered Flight	DC	SCI.P.1.4	Recognize the use and limitations of models and theories as scientific representations of reality.
1903: Powered Flight	DC	SCI.P.1.10	Select and use appropriate tools and technology to perform tests, collect data, analyze relationships, and display data. (The focus is on manual graphing, interpreting graphs, and mastery of metric measurements and units, with supplementary use of computers and electronic data gathering when appropriate.)
1903: Powered Flight	DC	SCI.P.2.7	Explain how a force acting on an object perpendicular to the direction of its motion causes it to change direction but not speed.

1903: Powered Flight	DC	SCI.P.2.13	Create and interpret graphs of speed versus time and the position and speed of an object undergoing constant acceleration.
1904: Improvement in Dayton	DC	SCI.P.2.3	Predict and explain how when one object exerts a force on a second object, the second object always exerts a force of equal magnitude but of opposite direction and force back on the first: F1 on 2 = –F2 on 1 (Newton's third law).
1904: Improvement in Dayton	DC	SCI.P.2.7	Explain how a force acting on an object perpendicular to the direction of its motion causes it to change direction but not speed.